

CLAIMS

1. A signal processing device for receiving data which has been converted into a digital signal in predetermined sampling intervals, compressing the input original data, and
5 recording the resultant data into a memory, the device comprising:

thinning means for thinning the original data into thinned data having a sampling interval different from the predetermined sampling interval;

determining means for analyzing the original data in predetermined constant intervals, and based on a predetermined criterion, determining which of the original data
10 and the thinned data of the thinning means is selected;

data writing means for writing selected data which is one of the original data and the thinned data of the thinning means, into the memory in the predetermined constant intervals, based on a determination result of the determining means; and

information writing means for writing determination result information of the
15 determining means into the memory.

2. The signal processing device of claim 1, wherein the thinning means includes a plurality of thinning means for thinning the original data into a plurality of pieces of thinned data having a plurality of sampling intervals different from the predetermined
20 sampling interval, and

the predetermined constant interval is equal to a largest sampling interval of the plurality of different sampling intervals.

3. The signal processing device of claim 2, wherein the plurality of sampling
25 intervals have a relationship of an integral multiple with respect to the sampling interval of the original data, and the plurality of sampling intervals have a relationship of an integral multiple with respect to each other.

4. The signal processing device of claim 1, wherein the thinning means calculates an average value of the original data within one sampling interval, and the average value data is representative data which is used as thinned data.

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5. The signal processing device of claim 1, wherein the thinning means calculates a data value which is located at substantially a center when original data is sorted within one sampling interval, and the center value data is representative data which is used as thinned data.

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6. The signal processing device of claim 1, wherein the predetermined criterion of the determining means is determined by comparing a result of calculation of a feature amount of each piece of data within each predetermined sampling interval of original data, with a predetermined threshold value.

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7. The signal processing device of claim 6, wherein the feature amount is a sum value of absolute differential values between each adjacent piece of data within each predetermined sampling interval of original data.

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8. The signal processing device of claim 6, wherein the feature amount is a maximum value of absolute differential values between each adjacent piece of data within each predetermined sampling interval of original data.

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9. The signal processing device of claim 6, wherein the feature amount is a sum value or a maximum value of second-order derivatives between each adjacent piece of data within each predetermined sampling interval of original data.

10. The signal processing device of claim 6, wherein the feature amount is any combination of two or more of a sum value and a maximum value of absolute differential values between each adjacent piece of data within each predetermined sampling interval of original data, and a sum value or a maximum value of second-order derivatives between
5 the each adjacent piece of data.

11. The signal processing device of claim 6, wherein the predetermined threshold value is changed, depending on the feature amount of original data.

10 12. The signal processing device of claim 1, wherein the information writing means writes determination result information at the same address as an address of data written into a memory by the data writing means, the determination result information being appended to the data.

15 13. The signal processing device of claim 1, wherein the information writing means writes a plurality of pieces of determination result information together at an address different from an address of data written into a memory by the data writing means.

20 14. A signal processing device for receiving data which has been converted into a digital signal in predetermined sampling intervals, compressing the input original data, and recording the resultant data into a memory, the device comprising:

determining means for analyzing the original data in predetermined constant intervals, and based on a predetermined criterion, determining whether or not the original data is selected;

25 thinning means for thinning the original data into thinned data having a sampling interval larger than the predetermined sampling interval, when the original data is not selected, based on a determination result of the determining means;

data writing means for writing selected data which is one of the original data and the thinned data of the thinning means, into the memory in the predetermined constant intervals, based on the determination result of the determining means; and

information writing means for writing determination result information of the
5 determining means into the memory.